Proposed Northwest RTO Efficiency Principle:

Efficient Operation and Expansion of the Northwest Grid through RTO Pricing, Planning and Congestion Management

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Introduction

In March of 2000, the major transmission owning utilities in the Northwest issued a number of documents related to RTO formation in the Northwest. These documents included a description of a consensus structure for a Northwest RTO, a list of fourteen principles agreed upon by the transmission owners, and a list of twenty outstanding issues that need to be addressed in the process of forming an RTO. The issues of congestion management, planning, and system expansion are listed among the twenty outstanding issues, but are notable in their absence from the agreed-upon principles. **The authors propose that the transmission owners add a fifteenth principle as follows:**

> 15. Efficient Operation and Expansion of the System: The RTO shall encourage efficient operation and expansion of the system through its pricing, planning and congestion management practices. The RTO tariff shall include a congestion management and pricing mechanism that encourages economically efficient use of scarce transmission capacity, operation of generating resources, and timing and location of new generation and demand-side investments. The RTO planning process shall facilitate least-cost solutions to transmission system needs, whether they involve additional transmission investment, new generation capacity or load management.

Further, we propose that these elements be in place when the RTO goes into operation in December, 2001.

Why should the RTO proposal incorporate efficient congestion management and pricing?

Because removing pancakes will not necessarily result in more efficient operation of the system without efficient congestion management

Eliminating pancaked access fees is intended to result in system-wide benefits from a more efficient dispatch of existing generation. These benefits may not materialize if generators are operated without regard to congestion costs they impose on the system.

Because in this region, the largest portion of the benefits of RTO formation come from more efficient generation expansion

IndeGO modeling showed $10 million in reduced dispatch costs due to eliminating pancaking but, in preliminary analysis, as much as $100 million per year across the West in reduced costs through more efficient generation expansion and operation. These benefits come primarily from reduced need for system investments due to improved timing and location of new generation and demand management schemes.

Because Order 2000 requires it

Order 2000 explicitly requires a market mechanism that sends efficient price signals:

> "…we will require the RTO to implement a market mechanism that provides all transmission customers with efficient price signals regarding the consequences of their transmission use decisions."

While FERC appears willing to consider alternative models that are conceptually complete, it expresses strong preference for one of two existing models, either locational marginal pricing or a physical rights model with firm tradable rights:

> "…markets that are based on locational marginal pricing and financial rights for firm transmission service appear to provide a sound framework for efficient congestion management."

Efficient congestion management could be achieved with either model, or through some combination of the two models.

Because an efficient pricing and congestion management mechanism will facilitate transparent seams with neighboring RTOs and efficient solutions to loop flow problems

Transparent seams between multiple RTOs in the western interconnection can lead to enhanced efficiencies in operation of the west-wide system beyond what is achieved through RTO formation. Ensuring seamless markets is a priority for the Committee on Regional Electric Power Cooperation, and the Western Market Interface Committee has established a work group to help coordinate among incipient western RTOs. This process can be greatly facilitated through adoption of efficient pricing and congestion management:

- Reliance on annual access fees to collect fixed costs will allow reciprocal transfers between RTOs and avoidance of pancaked transaction fees at seams.
- Efficient congestion management and pricing and coordination by adjacent RTOs will yield seamless congestion management at interconnections between RTOs.
- Efficient congestion management and pricing, and coordination among RTOs in the western interconnection can yield an efficient, market-oriented solution to loop flow as required by Order 2000.

Maximum transparency of RTO boundaries may be difficult, if not impossible, to achieve without efficient and compatible pricing and congestion management systems in all western RTOs.

Why should the RTO commit to having efficient congestion management and pricing in place at startup?

Because congestion management and pricing affect key decisions on generation investments, market-driven transmission system expansion and demand-side investments (especially decisions on location), as well as operating decisions for generation and demand-side facilities

Order 2000 requires the RTO to have the transmission expansion planning function in place at startup. The Northwest utilities call this out in their list of principles: "The RTO specifically shall have the authority … to enter into agreements that would result in transmission facility interconnections, additions, expansions and upgrades that the RTO found were needed to facilitate transmission reliability and to meet economically the transmission requirements of the wholesale power market."

Efficient transmission pricing and congestion management must be an integral part of this RTO undertaking.

Market-driven investments have the potential to either aid or hinder the effort of the RTO to operate the system cost-effectively. The prices that market participants see for using the transmission system to access markets will affect their decisions on how intensively to run each generation plant, where to build new ones, where to invest in new demand-side resources, and when and where to expand the transmission system. Efficient congestion management and pricing will help ensure that the system is run for maximum benefit and lowest cost, and that expansions are made in the right place at the right time. The current system of congestion management in the western interconnection is not efficient and does not convey to users price signals that reflect the actual cost of using different parts of the system.

In the vertically integrated utility world, congestion pricing was implicit, and utilities had no particular incentive to favor one type of project over another. In a deregulated market world, decisions on whether to invest in new transmission, new generation or new demand-side resources will all be made by different parties. Congestion pricing must now be made explicit. Designing a system expansion model without considering congestion pricing would flaw the decision process in an area that is of central concern to the RTO.

Because Order 2000 requires <u>some</u> method of managing congestion to be in place at startup

"…upon start-up, the RTO must have in place effective protocols for managing congestion while preserving reliability. Because the NOPR did not make this point explicitly, we do so here."

FERC has allowed extra time, a year, to implement market mechanisms for congestion management and three years to address loop flow, but there is no reason not to try to beat this deadline. The existing model for congestion management may enable the region to muddle through for the interim, but it is ill-suited to a decentralized market environment. It makes it difficult for high-valued transactions to bump lower-valued ones on congested paths; it fails to ensure that the maximum use is made of existing capacity; it does not send price signals on the value of congested paths. The region should strive at having an efficient congestion management and pricing system in place by the time of RTO startup.

Because the region already has a head start on the subject

Much work was done on congestion management and pricing during the IndeGO process. While the product of that process was not entirely satisfactory, it could be used as the basis on which a new model is designed. Many of the individuals that were involved in that process would be available to staff a congestion management work group during the RTO formation process.

In addition, the WRTA TAP Committee's Firm Transmission Rights Work Group developed a comprehensive proposal for Firm Transmission Rights (FTRs) in the western interconnection. This proposal formed the basis for the California ISO FTR system that was enacted late in 1999. Many parties in the Northwest now have experience with the ISO congestion management and firm transmission rights protocols.

Because there are significant opportunity costs to postponing efficient pricing and congestion management

Postponing the development of efficient congestion management and pricing systems would result in significant costs from lost dispatch efficiency and system expansion mistakes. Investments in new generating and demand-side facilities are underway continuously and transmission expansion planning will be at issue immediately on formation, especially given the backlog of potential transmission projects that have been identified by transmission owners. The next three to five years will also see a number of new power plants come on line. Developing a robust congestion management proposal early in the process could help ensure that the right plants get sited and the wrong ones don't. Pushing off the decision on congestion management will guarantee that transmission system impacts are *not* considered in this process.

Principles for an efficient pricing and expansion model

Fixed access charges for recovering sunk transmission costs

- Fixed access charge that does not vary with the volume of electricity scheduled across the grid, the distance between points of injection and points of receipt, or the number of utility interconnections crossed.
- Preferably, access charges should be load-based.

- Preferably, access charges should be blended in areas in which bus-shopping could be a problem. Concerns about cost-shifting should be mitigated where possible but must not be allowed to paralyze efforts to craft a solution.

Network-priced, market-based congestion management by generation redispatch

- Marginal-cost pricing for use of congested paths.
- Zonal approximation of nodal pricing model. Intra-zonal congestion managed by RTO and charged as uplift. Inter-zonal congestion charged to forward schedules across congested interfaces.
- Assignment of responsibility for congestion cost recovery should match the physics of the underlying system as closely as is practicable.
- Firm tradable rights allow users to hedge congestion costs.
- Congestion management model must balance accuracy of price signal with complexity of required commercial transactions.
- Congestion management model must be compatible with, at a minimum, and preferably substantially similar to other models in use in the western interconnection.

Planning and expansion process which facilitates least-cost solutions

- RTO planning process must be explicitly chartered to search for the most efficient expansion decisions, whether they involve additional transmission investment, generation capacity or load management.

Financing grid expansion

- Local, load-serving facilities should be rolled into local rates, whether company rates or access area rates.
- Inter-zonal facilities whose primary purpose is to add bulk transfer capability should be market-driven and financed by the parties who will benefit from reduced congestion. The RTO role could fall anywhere on a spectrum from no involvement to facilitating an ownership group to building and operating the facilities, as long as the costs of new inter-zonal are recovered efficiently. That is, they should not be rolled into access charges or applied to transactions.